

**REMARKS**

**I. CLAIM STATUS**

Claims 1-26 are pending. Claims 2 to 5 have been amended to clarify that it is the hydrolysis stabilizer compound that is present in the recited amounts, as it is in claim 1. No new matter has been added.

**II. INTERVIEW SUMMARY**

Applicants thank the Examiner for her time to conduct an interview with Applicants' representative on May 7 and 14, 2009. During the interview, Applicants' representative discussed Applicants' belief that the Examiner's reliance upon U.S. Patent No. 6,350,431 to Snow et al. ("Snow") is based upon a misinterpretation of Snow. Specifically, Applicants' representative discussed how Snow taught that its contrasting agents could be derived from surfactants, not that the contrasting agents were surfactants or even stabilizers, citing columns 9 to 10. It is the understanding of Applicants' representative that the Examiner agreed with Applicants' interpretation of this portion of Snow, but that the Examiner reserved the right to review the remainder of Snow. In view of the Examiner's comments, Applicants submit this paper.

**III. REJECTIONS UNDER 35 U.S.C. § 103(a)**

The Examiner maintains the rejection of claims 1-26 under 35 U.S.C. § 103 as unpatentable over U.S. Patent No. 6,577,796 and WO 00/21098 (collectively, "Anelli")<sup>1</sup> in view of U.S. Patent No. 5,134,036 to Uemura et al. ("Uemura") and U.S. Patent No.

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<sup>1</sup> The Examiner has again improperly relied upon U.S. Patent No. 6,577,796 ("the '796 patent") as prior art. For the reasons set forth in Applicants' prior responses dated April 24, 2008, and November 8, 2008, the '796 patent is not available as prior art under 35 U.S.C. § 103(c).

5,187,226 to Kamachi et al. ("Kamachi"), further in view of U.S. Patent No. 6,350,431 to Snow et al. ("Snow") for the reasons of record. See Jan. 23, 2009, Final Office Action at 2-4. The Examiner reiterates the same rationale for relying upon Anelli, Uemura, Kamachi, and Snow, as stated in the previous office action. Applicants respectfully disagree and traverse this rejection for at least the reasons of record, as well as the following additional reasons.

Several basic factual inquiries must be made in order to determine the obviousness or non-obviousness of claims of a patent application under 35 U.S.C. § 103. These factual inquiries, set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 U.S.P.Q. 459, 467 (1966), require the Examiner to:

- (1) Determine the scope and content of the prior art;
- (2) Ascertain the differences between the prior art and the claims in issue;
- (3) Resolve the level of ordinary skill in the pertinent art; and
- (4) Evaluate evidence of secondary considerations.

The obviousness or nonobviousness of the claimed invention is then evaluated in view of the results of these inquiries. *Graham*, 383 U.S. at 17-18, 148 U.S.P.Q. 467; see also *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1730, 82 U.S.P.Q.2d 1385, 1388 (2007).

Indeed, to establish a *prima facie* case of obviousness, the Examiner must:

make a determination whether the claimed invention "as a whole" would have been obvious at that time to that person. Knowledge of applicant's disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the "differences," conduct the search and evaluate the "subject matter as a whole" of the invention. The tendency to resort to "hindsight" based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight

must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.

M.P.E.P. § 2142. “The key to supporting any rejection under 35 U.S.C. § 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious.”  
*Id.* It is important to note, moreover, that the prior art references relied upon in a rejection “must be considered in its entirety, i.e., as a **whole, including portions that would lead away from the claimed invention**,” when such reasons are articulated by the Examiner. M.P.E.P. § 2141.03(VI) (second emphasis added); *see also Graham*, 383 U.S. at 17, 148 U.S.P.Q. 467.

Applicants respectfully submit that the Examiner has still not established a *prima facie* case of obviousness because there would have been no motivation to incorporate the compounds of Snow, Uemura or Kamachi for the stabilizers of Anelli, and no reasonable expectation of success to arrive at Applicants’ claimed invention, when Anelli, Uemura, Kamachi, and Snow are considered **as a whole**.

**A. Snow Does Not Teach the Claimed Stabilizers**

The Examiner asserts that “Snow teaches compounds comprising backbone structures that are substantially similar to that of formula 1 . . . . The compounds can be attached to surfactant molecules by means of linking groups and the surfactant molecules have many utilities such as stabilizers. . . . As to the distance between the two hydrogen atoms, Snow teaches that it is the examiner’s position that the teachings at column 43, line 27 through column 44 and line 50, would render obvious compounds having the requisite spacing, in the absence of factual evidence to the contrary.” Final Office Action at 3-4. The Examiner concludes that it would have been obvious “to

modify the teachings of Anelli by using as the stabilizer, the surfactant molecule taught by Snow with the reasonable expectation of obtaining the efficacious properties associated therewith.” *Id.* at 4. Applicants respectfully disagree.

**1. Snow’s Compounds Are Not Disclosed to Be Surfactants nor Are They Substantially Similar to That of Formula 1**

The Examiner relies upon Snow’s contrasting agents disclosed in columns 9 through 11. *See id.* at 4. As discussed above in Section II, the Examiner has misinterpreted the teaching of Snow and, thus, cannot rely upon Snow to invalidate the claims. The following discussion further clarifies Applicants’ position.

First, contrary to the Examiner’s allegations (*See* Final Office Action at 3-4), Snow does not teach that its contrasting agents are surfactants or stabilizers, let alone hydrolysis stabilizers. Rather, this portion of Snow explains that the disclosed contrasting agents may merely be ***derived*** from surfactants, which are modified to accept chromophores. *See Snow*, cols. 9-10.

Second, these contrasting agents are not substantially similar to Formula 1, R<sup>2</sup>-X<sup>1</sup>-R<sup>1</sup>-X<sup>2</sup>-R<sup>3</sup>, which is described at pages 3-4 of the as-filed specification. Indeed, Snow provides five exemplary structures for its contrasting agents between columns 9 and 12. None of these exemplary structures, however, has an X<sup>1</sup> or X<sup>2</sup> in accordance with formula 1. Moreover, the disclosed chromophores do not appear to meet the definitions for R<sup>2</sup> and R<sup>3</sup> in formula 1.

For at least the foregoing reasons, Applicants respectfully submit that the Examiner’s basis for a *prima facie* case of obviousness is incorrect and the rejection should be withdrawn.

## **2. Snow Is Non-Analogous Art**

Applicants further submit that Snow is non-analogous prior art and thus, one of ordinary skill in the art would never have considered Snow, let alone thought to combine it with the other prior art references. The M.P.E.P. instructs as follows:

The examiner must determine what is “analogous prior art” for the purpose of analyzing the obviousness of the subject matter at issue. “Under the correct analysis, any need or problem known in the field of endeavor at the time of the invention and addressed by the patent [or application at issue] can provide a reason for combining the elements in the manner claimed.” *KSR International Co. v. Teleflex Inc.*, 550 U.S. \_\_\_, \_\_\_, 82 USPQ2d 1385, 1397 (2007). Thus a reference in a field different from that of applicant’s endeavor may be reasonably pertinent if it is one which, because of the matter with which it deals, logically would have commended itself to an inventor’s attention in considering his or her invention as a whole.

M.P.E.P. § 2141.01(a)(I).

The claimed invention concerns telecommunication cables and the problem of stabilizing (i.e., preventing further saponification/hydrolysis) of a water-soluble polymeric composition comprising a vinyl alcohol/vinyl acetate copolymer and a plasticizer, and provides the solution by means of a hydrolysis stabilizer having specific molecular characteristics and added in a specific amount.

In stark contrast, Snow is directed to physiologically tolerable light imaging contrast agent compounds useful in light imaging procedures. *See, e.g.*, Snow at col. 1, lines 10-13; *see also id.* at col. 1, lines 63-67 (indicating that the object of Snow is “to provide light imaging contrast agents . . . suitable for example for studies of blood flow, of perfusion of effusion, and of the vascularization of sites of interest”). Snow is not directed to telecommunication cables, hydrolysis stabilizers, or their inclusion to

stabilize water-soluble polymeric compositions. Thus, Snow relates to a field of endeavor that is significantly different and wholly unrelated to the fields of endeavor of the other prior art, as well as the pending claims. Therefore, Snow would not “have commended itself to an inventor’s attention in considering his or her invention as a whole.” See M.P.E.P. § 2141.01(a)(I).

For at least the foregoing reasons, Applicants respectfully submit that a *prima facie* case of obviousness has not been established and the rejection should be withdrawn.

**3. One of Ordinary Skill Would Have No Motivation to Rely Upon the Teachings of Snow, and Would Have No Reasonable Expectation of Success**

In view of Snow’s actual disclosure at columns 9 and 10, Applicants submit that one of ordinary skill would see no reason to combine Snow with the other cited references in an attempt to arrive at the claimed invention. More specifically, one of ordinary skill, considering the references as a whole, would see no reason to combine Snow’s light imaging contrasting agents of Snow with the optical fiber cable of Anelli in an attempt to arrive at the claimed invention.

First, there is no evidence of record that one skilled in the art would ever have thought a light imaging contrasting agent suitable for identifying tumors in the body has any relevance whatsoever to an optical fiber cable. Indeed as described above, Snow appears to be silent with respect to telecommunications cables, much less the use of its light imaging contrasting agents in such cables. Second, the Examiner has provided no evidence that supports a conclusion that Snow’s light imaging contrasting agents are

suitable for use as hydrolysis stabilizer compounds, or that one skilled in the art would consider them for use in telecommunications cables. Indeed, nothing in Snow, Anelli, or any other reference relied on by the Office appears to support such a conclusion. Third, in view of the significant difference between the fields of endeavor of Snow and Anelli, one of ordinary skill in the art at the time the invention was made would have no reasonable expectation of success in making the combination proposed by the Examiner.

For at least the foregoing reasons, Applicants respectfully submit that a *prima facie* case of obviousness has not been established and the rejection should be withdrawn.

**B. Uemura and Kamachi Do Not Render the Claims Obvious**

The Examiner relies upon Uemura and Kamachi for their disclosure of the use of Irganox 1098 as an antioxidant. Jan. 23, 2009, Final Office Action at 3. The Examiner has already determined that their disclosure is insufficient in view of Applicants' arguments of April 24, 2008. See July 25, 2008 Office Action (adding Snow to rejection in response to Applicants' arguments of April 24, 2008).

In particular, Applicants note that in adding Snow to the rejection, the Examiner essentially admits that the antioxidants of Uemura and Kamachi are not interchangeable with the stabilizers of Anelli. This is supported by the Examiner's stated understanding that the antioxidants of Uemura and Kamachi serve a function during the manufacturing process of the copolymer. See Jan. 23, 2009, Final Office Action at 3 ("Uemura discloses ethylene-vinyl alcohol copolymers produced by saponification of ethylene-

vinyl ester (such as vinyl acetate) in the presence of an antioxidant . . . .” (emphasis added) & “Kamachi discloses vinyl alcohol polymers and copolymers with vinyl acetate that are produced by a process that includes hydrolysis [i.e., saponification] in the presence of an antioxidant. . . .” (emphasis added)).

In contrast, Anelli does not concern the production of a copolymer. Rather, Anelli discloses a product comprising a different copolymer, a vinyl alcohol/vinyl acetate copolymer, wherein stabilizers may be added in a sufficient amount to the already saponified copolymer to form its inventive product. See Anelli, page 10, lines 20-27 and page 18, lines 1-8. In other words, the stabilizers of Anelli serve their function after the vinyl alcohol/vinyl acetate copolymer product has been manufactured, whereas the antioxidants of Uemura and Kamachi function during the production of a copolymer. Given these differences, Applicants submit that one of ordinary skill would have no expectation of interchangeability and, thus, would have no motivation to combine the antioxidants of Uemura with the composition of Anelli and no reasonable expectation of success.

Moreover, the references relied on by the Examiner do not otherwise offer one skilled in the art a motivation to use a hydrolysis stabilizer in accordance with the claims to stabilize an already produced vinyl alcohol/vinyl acetate copolymer. Rather, the cited prior art only discloses that a stabilizer in accordance with the claims is known to be effective for alternative/differing purposes. Further, the cited prior art does not provide any direction/motivation to select the very narrow set of claimed stabilizers.

Thus, one skilled in the art reading Uemura or Kamachi would not have been motivated to use a hydrolysis stabilizer in Anelli, in order to stabilize an already



produced vinyl alcohol/vinyl acetate copolymer. In particular, one skilled in the art would not be motivated to use a compound, which is disclosed to be necessary to hydrolyze/saponify the copolymer, as a stabilizer to prevent further hydrolyzation/saponification of that same copolymer. Thus, one of ordinary skill would see no reason to combine Anelli, Uemura, and/or Kamachi in an attempt to arrive at the claimed invention.

Furthermore, neither Uemura nor Kamachi appreciate the importance of selecting a stabilizer with the claimed properties. Applicants have discovered that compositions containing hydrolysis stabilizers within the scope of the claims (e.g., Irganox® 1098) have unexpectedly superior properties as compared to compositions containing stabilizers outside the scope of the claims (e.g., Irganox® 1010). The distance between the hydrogen atoms of -NH- in Irganox® 1098 is  $5.0 \times 10^{-10}$  m, while the distance between the hydrogen atoms of -C(OH)- in Irganox® 1010 is  $8.7$  to  $10.5 \times 10^{-10}$  m, which is outside the recited range of claim 1. Table 2 of the present application shows the effectiveness of a hydrolysis stabilizer according to the invention (composition 1, containing Irganox® 1098) versus hydrolysis stabilizers having a hydrogen distance outside of the claimed range (e.g., composition 5, containing Irganox® 1010, which had the worst reported value). This experimental data demonstrates that hydrolysis stabilizers within the scope of the claims, such as Irganox® 1098, are unexpectedly superior to stabilizers that are outside the scope of the claims, such as Irganox® 1010 for the purpose of stabilizing an existing vinyl alcohol/vinyl acetate copolymer.

Yet, both Uemura and Kamachi incorrectly deem those compounds to be equivalent antioxidants. Uemura, col. 3, line 50 - col. 4, line 13 (“[t]he antioxidant is not particularly limited as long as it does not act adversely to the saponification reaction . . . and is representatively exemplified by, for example, hindered phenol antioxidants,” such as Irganox® 1010 and Irganox® 1098.); Kamachi at col. 6, line 65 – col. 7, line 24 (listing both IRGANOX 1010 and IRGANOX 1098 as examples of suitable antioxidants). A factor that the Examiner must consider in her determination of obviousness. See M.P.E.P. § 2141(V).

For at least the foregoing reasons, Applicants respectfully submit that a *prima facie* case of obviousness has not been established and the rejection should be withdrawn.

### **Conclusion**

In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration of this application and the timely allowance of the pending claims.


If the Examiner believes a telephone conference could be useful in resolving any of the outstanding issues, she is respectfully invited to contact Applicants’ undersigned counsel at 202-408-4275.

Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

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Dated: May 22, 2009

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